TAMPEREEN
AMMATTIKORKEAKOULU

LIIKETALOUS

OPINNÄYTETYÖRAPORTTI

SME Internationalization:
Mass Casualty Rescue in UK Air Safety

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International Business BBA
Helmikuu 2007
Työn ohjaaja: Matti Haverila

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TIIVISTELMÄ

Opinnäytetyö on tehty Kuopiossa toimivan kansainvälistyvän pienyrityksen tarpeisiin. Yritys on aloittamassa uuden tuotteen markkinointia Isoon-Britanniaan, ja työn tarkoituksena on selvittää yleisesti pienyrityksen kansainvälistymisen erityispiirteet ja erityisesti ko. tuotteen potentiaali lentoturvallisuuden alalla.

Teoreettinen pohja työlle on Reijo Luostarisen asteittaisen kansainvälistymisen mallissa, jonka lisäksi tutkitaan sen soveltuvuutta pk-yritysten toimintaan. Pienyritysten toimintaan vaikuttavat motivaatio- ja behavioraaliset tekijät käydään tutkimusten valossa läpi. Käytännön tutkimustieto on saatu Derryn lentokentällä järjestetystä pelastusharjoituksesta ja Ulsterin yliopiston siitä tekemästä selvityksestä.

Työn lopputuloksena on havaittu, että tuotteen markkinapotentiaali ei ole riittävä yksittäiseksi vientituotteeksi, vaan sen pitää olla osa suurempaa tuotevalikoimaa. Siihen on myös tehtävä muutoksia jotta se vastaisi asiakassegmentin odotuksia.

This study focuses on a Finnish, Kuopio-based SME that is relatively new to introducing its products internationally. It concentrates on new product and its feasibility of its marketing to the United Kingdom. The market under particular scrutiny is the field of airport rescue in the event of an airliner accident.

Theoretical foundation to the study lies with the works of Reijo Luostarinen. The study presents the stage model and assessment of its applicability to small and medium-sized enterprises. Special emphasis is placed on the organizational motivation of SMEs and behavioral influences as described in various journals. The practical usability of the product has been assessed from data obtained from an exercise in the City of Derry Airport, in which the company's products were tested and subsequently evaluated and collated in the University of Ulster.

The findings of this study are that in order to successfully market the product, some redesign must first be undertaken in order to differentiate it from the main product. The product does not have the market potential to generate enough revenue to solely sustain operations in the UK, and rather should be used alongside the existing main product.

Avainsanat: Pk-yritys, kansainvälistyminen, SME, Air safety, Rescue

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1. Introduction

1.1. Significance of SMEs

In the world of business, the public eye is most often focused on large or multinational corporations. Their actions – quarterly reports, layoffs, expansions – serve as indicators of the total health of the economy. Yet, it can be argued that the true generators of wealth and employment in industrialized countries are the countless small and medium-sized businesses that are mostly overlooked. Their contribution in the creation of jobs is significant in Finland (62 % of private workforce) and they account for 99% of all businesses EU-wide (Table 2). Despite that, it is only recently that small and medium-sized (SME) business management has reached the public eye.

SMEs are defined in the EU according to the number of employees and turnover or balance sheet totals (Table 1). The categorization is intended to help the EU member states develop its legislation and direct governmental aid to suitable applicants (2003/361/EC). As is evident, the variation among SME sizes is rather large.

Table 1. EU categorization of business size.

CATEGORY	EMPLOYEES	TURNOVER	BALANCE SHEET TOTAL
Medium	< 250	≤ 50 M€	≤ 43 M€
Small	< 50	≤ 10 M€	≤ 10 M€
Micro	< 10	≤ 2 M€	≤ 2 M€

Source: EU Recommendation 2003/361/EC

In 2005, the Finnish Government has outlined its Entrepreneurship Promotion Program as an attempt to encourage the formation of small businesses. The government attributes the

apparent unwillingness to start businesses to red tape and lack of accessible funding (Finnish Government 2005, pp 2-6).

1.1.2. Differences between large businesses and SMEs

In principle, business should work "as above, so below" – basic tenets hold true for big business as well as for the street vendor. However, conducting business for a major multinational differs so much from the management of a SME that wholly separate skill sets are required and indeed, a wholly different mentality must govern. Small businesses (i.e. those with less than 50 employees) cannot be governed as large businesses scaled down. The disparity in both human and monetary resources and differences in organizational factors are simply too large to ignore. Therefore, the SME must often rely on the competence of its CEO and Board of Directors in order to maintain a sustainable strategy (Äijö 2001, p.9).

While the disadvantages of being a small company are numerous, small business does have a reputation for innovativeness. The inherent cumbersomeness of a large or multinational organization is thought to cause it to lose the ability to react quickly to changing business trends and precludes innovation (Dutta & Evrard 1999, p.16). Small businesses do not have these qualities, and indeed the very lifeblood of a small business is its ability to innovate and defeat its larger rivals in niche markets. Nurturing an organizational culture that is friendly to innovation is one key point in a successful SME.

The question of financing is of paramount importance for any firm, but in SMEs it is especially troublesome. A study conducted by Finnvera shows that Finnish companies prefer loans and guarantees over capital investment (65% to 9%, respectively) and only 2% of them obtain funding for internationalization purposes (Finnvera 2002, pp.13-14). Whether the latter percentage reflects the propensity of internationalization or the frequency of obtaining specific internationalization funding is not apparent.

1.2. SMEs in Finland

1.2.1. Domestic Business Environment

A company's strategy and competitive advantages are linked to its country of origin. Not only does it have the cultural characteristics of its management and employees, but its domestic operations define the mindset with which the company starts internationalizing. Toivo Äijö has compiled a comprehensive list of influences with which a Finnish company operates.

Table 2. Influences of domestic business environment

1. Finland's domestic market provides no possibility to compete with low costs of labor or raw materials
2. The size of Finland's domestic market restricts the growth of enterprises; they must internationalize earlier and smaller than comparable foreign rivals
3. Consequently, Finnish enterprises do not have a domestic market edge to compete with cheap mass-produced wares
4. Educated workforce and level of technology in general means that Finnish firms are most competitive in fields that are neither labor- nor materials-intensive, especially in areas requiring little capital investment, e.g. telecommunication and IT.
5. The typical size of the firm and cost of capital set certain boundaries to resources and competitiveness: Finnish firms can achieve market leadership in niche markets unless they pool with foreign partners
6. Finland's unique advantages include: renewable raw materials (wood), reasonably clean produce and nature, experience of arctic climate, expertise in trade with Russia, etc.

Source: Äijö, T.S. *Suomalaisyritys kansainvälistyy, p. 35*. Translation by author.

There were 232 305 companies in Finland in 2004 (Statistics Finland 2004). Of these, micro- and small businesses are the most numerous. However, most of the micro-sized businesses are engaged in local retail or services and are unlikely to internationalize or grow.

Table 3. Company size as a percentage of total Finnish firms

Company sizes, 2004		
		% of total
Micro	216215	93,1 %
Small	13231	5,7 %
Medium	2295	1,0 %
Large	564	0,2 %
Total	232305	

Source: Statistics Finland 2004

The economic impact of SMEs can be quantified by employment and financial turnover. The statistics show that SMEs account for over half of the total employment and turnover of the Finnish private sector.

Table 4. SME economic impact

Employment and turnover by SME category				
	Employment	% of total	Turnover in 1000s €	% of total
Micro (1-9 employees)	322577	24,6 %	52810125	17,6 %
Small (10-49 employees)	256274	19,5 %	46895110	15,6 %
Medium (50-249 employees)	230890	17,6 %	57174415	19,1 %
Total SMEs	809741	61,7 %	156879650	52,3 %
Total private sector	1312245		299916738	

Source: Statistics Finland 2004

From these figures, it is evident that while a small minority of large firms accounts for a considerable share (47,7 %) of private sector turnover, the contribution of SMEs to the Finnish economy is significant not only financially, but also from an employment point of view.

From these summaries the assessment that SMEs are vital to the Finnish economy can be corroborated, as well as the fact that their internationalization is a non-trivial concern.

The main areas of competitiveness can be attributed to the educated workforce, technology and niche market strategy.

1.3. Purpose of study

This study aims to present a feasibility study for the internationalization of a new product from Telespro Finland Ltd, the Accident Covering. For these purposes, the issue of SME internationalization will be considered first from a theoretical point of view. The literature review part will aspire to present a detached and impassionate evaluation of the applicability of the stage model theory in the contemporary business world.

The theoretical aspect will serve as a framework to evaluate the company of the case study in order to ascertain to what extent the company has followed the theoretical pattern, and if that adherence or the lack of it has affected its general performance in a beneficial or detrimental way. The previous internationalization pattern will thereby lay the groundwork for the case study by revealing what missteps may be corrected.

This product's application shall be evaluated with one of the potential markets, airport accidents, in mind. The evaluation will be by field testing conducted on Oct 1st at City of Derry Airport, where the local fire and rescue departments tested Telespro's products in a simulated crash of a small jet. The input from the Northern Irish test will be used to formulate the eventual marketing approach.

The final chapters of this study will give a proposal by which the author thinks an effective marketing campaign could be conducted in the United Kingdom. This proposal will be fairly conservative in order to take the company's limited resources into account. The best avenues of market entry will be studied in terms of what sort of presence in the UK Telespro should establish and what customers they should approach first.

1.3.1 Literature

The theoretical work cited in this study is mainly from the Nordic School of internationalization, namely from Reijo Luostarinen's works. Also, a variety of materials regarding the internationalization of SMEs were made available from the Helsinki School of Economics article search, which was made available to the author via a personal contact. Statistical information was obtained mostly from Statistics Finland and the UK's National Statistics websites.

Regarding the history and operations of Telespro Finland Ltd, the author's own experiences and information obtained while working in said company is used liberally. Citations are provided for information exacted from interviews with outside contacts. While it might be appropriate to cite information obtained during the period of employment at Telespro, it is impossible to discern quotations or pin down when and by whom the facts were made known. Therefore, the information presented, when not cited, is original to the author.

1.3.2 Field Testing

In order to obtain information on the product's practical use by UK rescue organizations, the Accident Covering was included in an airport crash recovery exercise in the City of Derry Airport in Northern Ireland. The University of Ulster conducted a comparison survey of three patient protection and carrying equipment solutions: the conventional cotton blanket / stretcher combination, Telespro Rescue Covering and Telespro Accident Covering.

The exercise was carried out on October 1st, 2006. Results were made available on November 29th, 2006. Further details of the study are discussed in the relevant chapter;

however, it may be mentioned here that the exercise was severely hampered by the outstanding weather, which made it exceedingly difficult to evaluate the comfort levels of the mock casualties.

2. Internationalization of the SME

2.1. Introduction

> "In the 1960s and 1970s the well-known slogan within Finnish industries was 'export or die'. In the 1980s the slogan became 'internationalize or die' and in the 1990s it has changed into the form 'globalize or die'."
>
> -Reijo Luostarinen

Internationalization is the process with which a firm expands its conduct of business outside its domestic market. This may take place as an outward process, e.g. a firm can export its products abroad, or an inward process, where a company imports components, raw materials or technology (Luostarinen 1994, p.18). This chapter is concerned with the processes, models and motivations behind internationalization, and draws conclusions as hypotheses on how an SME might conduct its internationalization based on these models.

In the quotation above, Luostarinen remarks on the attitude among Finnish industries. As a contrary example, for companies operating in the United States, internationalization can often be more of a matter of choice than an obligation due to the large domestic market. For companies operating in small and open economies such as Finland, even large firms often find it necessary to internationalize in order to have a sustainable market for their products. For small Finnish high-technology firms internationalization has no alternatives; even though the domestic market may be reasonably large, it will never give the benefits of economies of scale, especially in a country where labor and other costs are relatively high (Äijö, p.35).

Consequently, discussing the motivations behind the internationalization of Finnish SMEs may seem pointless. This is not the case, because the underlying motivation will strongly influence the overall strategy of the process. Crick and Jones (2000, p.73) have, in their study of 10 high-technology SMEs, identified that previous international work

experience of the entrepreneur or manager can lead the firm to internationalize from the outset or rapidly in comparison with firms that were staffed by more technically oriented types or those that had no such experience.

This leads to the conclusion that a firm wishing to internationalize must consider its underlying mentality and competence regarding international business when planning the strategy with which the process will be directed. As reported by Crick and Jones (p. 74), it is possible that a manager will be "too interested in making money here and … not try to expand quickly enough". This illustrates how the motivation may unwittingly betray the method; ostensibly this firm was intended to be an international player.

Unless a firm conducts its international business on an *ad hoc* basis, the process of internationalization should adhere to a theoretical model at least to some extent. In general, this means that a company will gradually proceed from indirect, low-risk, low-commitment modes to direct, high-risk, high-commitment modes (Luostarinen 2002, p.15).

2.2. Theoretical models of internationalization

The process of internationalization has been studied extensively. Theoretical frameworks were first drawn up in the 1970s, and focused on the so-called "stage model" of internationalization. Scandinavian researchers Luostarinen & Hellman and Johanson & Wiedersheim-Paul & Vahlne in Finland and Sweden, respectively, developed the stage theory. It is defined as "a step-by-step process of international business whereby a firm becomes increasingly committed to and involved in international business operations through specific products in selected markets" (Luostarinen 1994, p.1). This model is still valid in assessing the strategies of most SMEs engaged in international operations, provided one takes its limitations into account.

The problem of using the stage model in the modern business environment is that it assumes certain facts which no longer apply, especially for Finnish SMEs. For example, with Finland's accession to the EU and its subsequent enlargement, tariff barriers to the former socialist countries of Eastern Europe have vanished. Also, the proliferation of the Internet and the adoption of General Agreement on Trade in Services have created a wholly new market for various goods and services in which smaller companies can prosper. However, these issues are not pressing and do not affect the underlying theory, but only present new opportunities.

The inherent usefulness of the stage model is that despite the changes in the world market, operationally it could be considered a project-based model of internationalization. It also breaks away from the instinctive point of view that international operations are those in which physical goods, intellectual property or cash cross national borders.

The stage model describes the process of company-level internationalization as a search for market acceptance with minimal risk. The stages progress from initial export operations through sales subsidiary, licensing/subcontracting and foreign production subsidiary stages; this model shows internationalization at its most basic (Luostarinen 1994, p.6).

When the basic stage model was further tested, the research suggested that a more comprehensive model is needed to accurately describe internationalization. The holistic stage model identifies 15 different types of international operations of varying degrees of involvement, which are divided into 4 categories based on whether the company employs foreign direct investment or not and whether the operations are production or marketing-based (Luostarinen 1994, pp.11-12).

Table 5. Classification of internationalization modes..

A. Non-investment marketing operations (NIMOs)
1. indirect exporting
2. direct exporting
3. own exporting
B. Direct investment marketing operations (DIMOs)
4. sales promotion subsidiaries
5. warehousing subsidiaries
6. service subsidiaries
7. sales subsidiaries
C. Non-investment production operations (NIPOs)
8. licensing
9. franchising
10. contract manufacturing
11. co-production
12. partial projects
13. turnkey projects
D. Direct investment production operations (DIPOs)
14. assembly subsidiary
15. manufacturing subsidiary

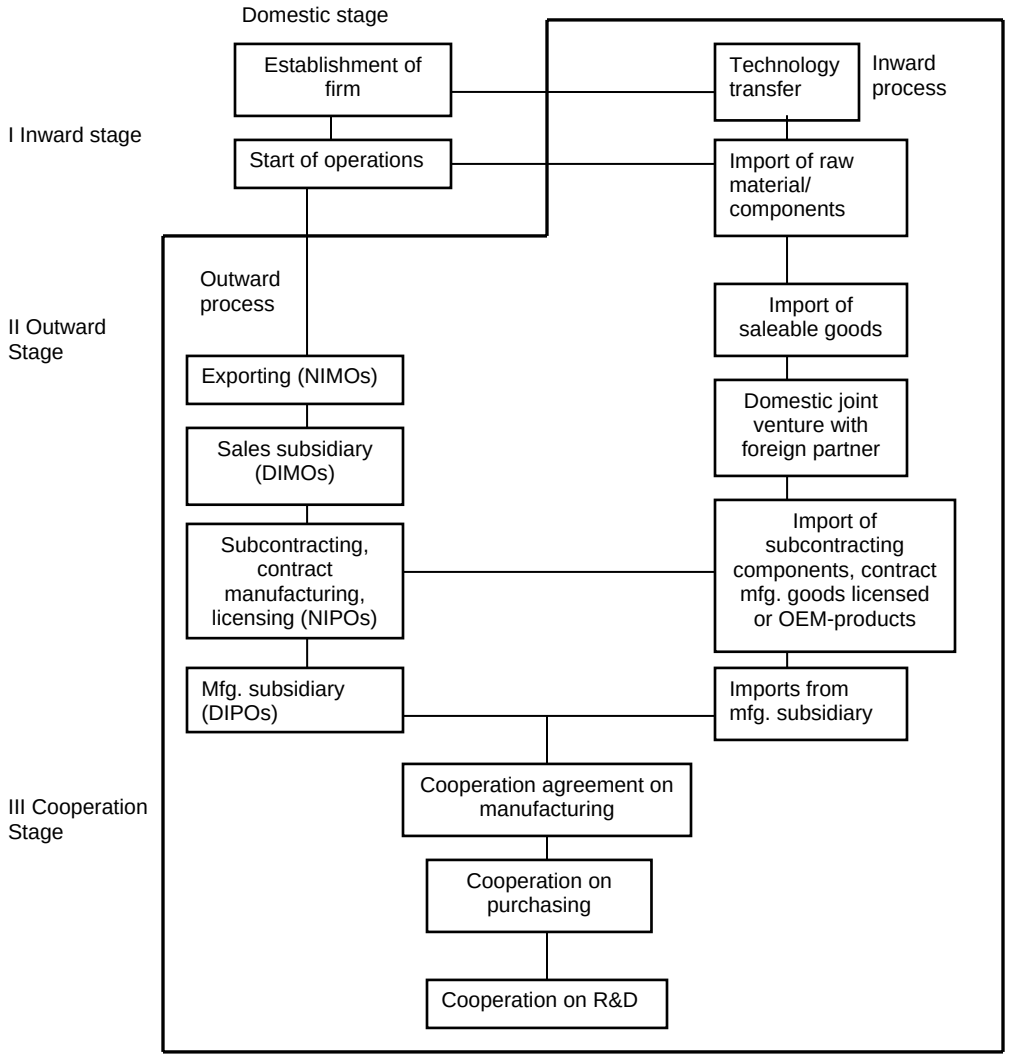
Source: Luostarinen 1994, p.11

Other forms of subsidiaries not included in Luostarinen's list are financing, R&D, logistics etc, in essence all operations a company can undertake, but in business theories they were discounted.

Luostarinen divides the stages in which a company internationalizes operationally into three distinct phases (Inward, Outward and Cooperation) within three processes (as before). Excluding the inward stage's inward process (which naturally is the domestic market) this yields the "pattern of internationalization" (Table 6.). Luostarinen acknowledges that an individual company's process does not necessarily hit all points in succession, but a general procedure of a domestic stage followed by any stage in the

pattern is usually detected. This is endemic of companies in dynamic business sectors. Also, Luostarinen notes that sometimes companies backtrack, for example by de-internationalizing sectors of their business. This may be voluntary or involuntary (Luostarinen 1994, p. 21).

Table 6. Stages of the holistic internationalization process of a firm based on the operation mode dimension.



Source: Luostarinen 1989; Luostarinen & Hellman 1994:8 as referenced in Luostarinen 1994, p.19

As stated, the stage model is useful to a certain extent. Crick and Jones (p.65) argue in their critique of the stage model that especially in the case of small high-technology

companies the model breaks down. Citing Bell (1995, pp. 60-75), Crick and Jones argue that such firms internationalize rapidly using inward and outward modes other than export and operate in several countries at once or in rapid succession. Bell's study, however, concentrated on computer software companies, and it is not surprising that such non-material products with a relatively short life-cycle would need rapid distribution schemes. As such, Crick and Jones are correct in their criticism at least when certain fields are concerned.

A relatively recent challenge to the role of motivation in the internationalization process has been presented by a new class of companies, termed "Born Globals". Born Globals are usually start-ups in high-technology business areas and geographically from small and open economies, and start international operations simultaneously or before domestic operations (Luostarinen&Gabrielsson 2002, p.14) The motivation of Born Globals is not one of a specific company advantage, but rather a necessity. In their highly unorthodox case, there is simply no smaller geographical area in which it makes sense to do business.

While Born Globals are rare and exceptional in their internationalization, they still follow the same rationales in choosing their path as normally internationalizing firms do. In remaining domestic, it is exceedingly hard to achieve an advantage from economies of scale or benefit from specialization as the Finnish market is quite small. Luostarinen argues that internationalization should be proportional to the degree of specialization (Luostarinen 1994. p.9), and that a "niche business" should always think internationally or even globally.

In conclusion, despite the accurate critiques of Crick and Jones, among others, it can be said that the stage model identifies the major operational phases of an internationalizing SME. It does not necessarily describe the sequence of said phases or the level of intensity with which the company carries out a specific phase. The usefulness of the stage model in practice is not to give answers on the lines of "what to do next" but reveal potential gaps in the firm's internationalization pattern and perhaps identify potential opportunities.

2.3 Motivation to internationalize

As enumerated by Luostarinen (1994, pp.6-9), there are four distinct classes of factors that influence the decision to go international: global, international, domestic and company-specific. Companies are pushed abroad by domestic factors, pulled by international factors, and facilitated by global and company-specific factors. One may note that all these factors are directing the company towards internationalization. The following sections shall evaluate these factors from the Finnish point of view.

2.3.1 Push and pull factors

Push factors for Finnish companies result from the nature of the Finnish economy and demographics. Finland has a small population and domestic market coupled with relatively high taxation and labor costs [Äijö, p.37]. As a consequence, it is extremely difficult for a Finnish company to profit from the domestic niche market and be able to compete with prices, while not being able to benefit from economies of scale (Luostarinen 1994, p.9).

Pull factor from the international market is influenced by two facts: the target country's market is almost always larger than the domestic market, and the openness of said market. Being a member of the EU, Finnish companies have access to the largest, population-wise, single tariff-less markets in the world, which should significantly influence the internationalization processes of Finnish firms.

2.3.2 International factors: business distance

In an earlier study, Luostarinen has investigated the concept of distance in examining the internationalization pattern of the firm (Luostarinen 1980, p.138). Termed "business

distance", it is the combination of factors arising from physical or geographic distance, differences in culture or "cultural distance", and disparities in relative economies of two countries ("economic distance"). Luostarinen uses business distance to explain why companies utilize various methods of internationalization in certain order and how the target markets are determined.

Since the publication of the aforementioned study in 1980, there have been major changes in the business distance of Finland in relation to most countries. Economic distance, for instance, has diminished since the expansions of the EU. Cultural distance has done the same due to the increased exposure of Finland as a high-technology powerhouse. In other cases, such as when considering Finland and Russia, it can be argued that business distance has increased in the past 25 years due to changes in the Russian economy. This illustrates the asymmetrical nature of business distance; when the Soviet Union fell, the ideological qualities that had brought Finland close in business distance vanished, without any substantial change in attitude in Finland.

Business distance can be used to ascertain how well impulses that evoke the motivation to internationalize arrive from the target country. When business distance is short, impulses or signals are more frequent and more readily accepted due to the perceived familiarity with the target market. In turn, long business distance causes not only less frequent impulses but also that they are often ignored or seen as risky (Luostarinen 1980, p.140).

As mentioned, business distance is the aggregate of physical, cultural and economic distances. How these parts affect the whole must be considered, because otherwise it is easy to misjudge business distance and its implications. Physical distance naturally affects the movement of goods and personnel, and in the Finnish case, is usually not a significant factor in internationalization because of the peripheral location of the country. In general, cultural and economic distances play a far greater role in determining the chosen markets, but their importance varies. For example, culturally Estonia can be considered to be close to Finland – many Estonians understand Finnish and have

knowledge of Finnish culture. However, due to the economic disparity and the long period of socialism, the business distance can be considered to be greater than it is to Denmark, to which cultural links are more tenuous but which is demographically and economically similar.

When determining the business distance to a foreign market, the factors mentioned above are all influenced rather strongly by the company's workforce. Should the company have employees who are intimately familiar with a foreign country, the business distance is naturally shorter than it would be normally. This may, however, be also a risk factor if said employee should become unavailable; the variation is small, but noticeable.

2.3.3 Company-specific factors

Luostarinen (1994, p.10) notes that "even strong push and pull forces are not necessarily enough … That is why the company-specific advantages form the final motivational basis which makes the company willing to start the process". Luostarinen then elaborates (1994, p.28) on the company-specific advantages by describing them as parts of the "excellence mix". The four aspects that make up the excellence mix are product, manufacturing, marketing and financing/information. The company must perceive one of these aspects as being clearly superior in the field in order to gain the motivation to internationalize. These aspects are not perceived as equal; their order of importance depends on the company. For Finnish companies, the typical order from most important to least was: product, manufacturing, marketing and finance. This illustrates the mentality behind Finnish motivations to internationalize; it infers that unless the product or production is perceived as superior, there is little motivation to go abroad.

2.3.4. Strategic and organizational motivation

SMEs may have different goals in their operations when compared to larger corporations. Large corporations have a wide base of shareholders that expect dividends or increasing share value; smaller firms often have a more exclusive ownership structure and there are no such demands. Consequently, the strategy of a SME can be influenced by the perceived interests of the management.

As previously noted, a Finnish SME will often have to pursue internationalization because of the smallness of the domestic market. There can be other reasons; Äijö (p.14) lists the entrepreneur's personal ambitions, the prestige associated with international trading and cognitive bias (tendency to ignore negative signals) as possible non-rational motivations.

Identifying the specific advantages that are being pursued by going international is the foundation of the company's international strategy. The stage model gives a logical procession of activities that a company can undertake over a long period of time, but in dynamic business areas such as are found in high technology it may only predict the first steps (Äijö 2001, p.44). A company may identify one country with a specific goal in mind, e.g. production subsidiary, and not operate in the market at all. Or, in a certain market, the company may have a distribution partnership in place but nothing else.

2.4 Behavioral influence to internationalization

How the internationalization process is ultimately carried out depends upon the people in the company, which has resulted in research into the behaviorist view. The strategic orientation and goal-setting is the brainchild of the senior management, and logically should reflect their own competence and skill sets. To somehow organize companies and their management into behavioral groups, the Miles and Snow typology is helpful (Miles & Snow 1978).

The Miles and Snow typology gleans a pattern from how the company conducts its affairs internally and externally and classifies their strategic orientation into four groups: *Prospectors*, extroverted risk-takers; *Defenders*, perfectionist and risk-averse; *Analysers*, balancing the two; and *Reactors*, who simply respond to stimuli from the marketplace with little or no strategic perspective. The Prospector and Defender types are most often found among high-technology SMEs. The last group is described as companies that "do not present any consistent pattern of response behavior to environmental conditions", a description that is not compatible with any firm that has an internationalization strategy, and consequently ignored in studies.

Miles and Snow typology seems to be independent of the company's industrial sector (O'Regan & Ghobadian 2004, p.88), so it can be a valuable tool to gain insight of a company's business mentality. A company with a clear Defender mentality is likely to approach internationalization with a highly scrutinized strategy, expanding forcefully into one national market at a time. A Prospector, in contrast, would attempt to gain "easy" customers from various countries simultaneously. O'Regan and Ghobadian hint that Defender types are more likely to follow established strategies, but do not explicitly mention whether this means that they adhere to the stage model (2004, p.85). This is presumably so. As a corollary, Prospector firms are characterized as "opportunistic" and would therefore be likely to carry out individual internationalization projects, as the situation warrants, from various markets.

Another impact of company mentality and strategic orientation is the ability of the company to retain its competitive edge. Measuring competitiveness can be done with Porter's 5 Forces analysis competitiveness matrix (Porter 1978, pp. 23-25). The five forces are: respective bargaining powers of suppliers and customers, threats of new entrants and substitute products and rivalry among peers. When considering Finnish high-technology SMEs, the competitive matrix can be considered uneven; there may not be any peers in the market area or threat of a substitute product, especially if the product is particularly unique or innovative. However, the matrix balances itself out by exhibiting increased customer bargaining power in the form of reluctance to adopt novel products and by increased threat of new entrants.

In his later works, Porter has elaborated on the competitiveness matrix with basic competitiveness strategies. A company can achieve market share either with comparably better pricing or with differentiation, i.e. having a superior product or some kind of advantage in marketing. The rationale behind this is that a company can either achieve low costs and therefore low prices, or it can spend money on marketing, R&D etc. and consequently be unable to keep its prices low (Porter 1980, p.14).

Westhead et al (2004, p. 510) have studied the impact of organizational strategies on the propensity to internationalize, and found that firms placing a strong emphasis on internationalization employ differentiation over pricing strategy. This falls in line with the expected strategy of a company that has little threat of substitute products and few peers in the market. It can be argued that pricing strategies should be employed only when there is significant threat of a substitute product, and it threatens the company's market share.

When constructing a synthesis on these methods of assessing companies, two main types follow by logic: Defender employing pricing strategy and Prospector with differentiation strategy. The former is more likely to proceed according to the stage model, whereas the latter could be thought as starting internationalization projects as they become feasible and stopping them once set goals have been achieved.

2.5 Summary

The internationalization strategies of SMEs have been shown to follow a general model of growth through different stages; however, the stages vary according to the specifics of the company in question. SMEs in general operate under different "rules", so to speak, than large corporations. This is because of their limited resources in both finance and workforce, and the nature of entrepreneur-driven company being a reflection of its management's personal qualities. The tendency of risk-avoidance is one of the chief reasons of companies proceeding according to the stage model, where the international commitment is tied to the perceived risk of the operation.

The influence of behavioral factors has been studied somewhat and codified with the Miles and Snow typology, which can be useful to some extent. The typology considers the competence and experience of the workforce as constructing a "organizational mentality", which in turn affects the company's progress in internationalization. In the stage pattern, the choice of the target market is influenced by the perceived "business distance", a combination of the physical distance and cultural and economic disparities between the home market and target country. By having employees that are familiar with the target country, the overall business distance and perceived risk are diminished, leading to a faster pace in internationalizing.

The process of internationalization as described by the stage model is, however, becoming dated. The strategy of companies in dynamic markets, for example in IT and other high-tech industries, is no longer necessarily to first establish a presence in the home market and then internationalize. Rather, the company – even a small one – may find that it simply does not benefit by concentrating on the domestic market at all. Such companies, termed "Born Global" companies, internationalize very rapidly from the outset. The reasons for such strategies can be, as above, the smallness of the domestic market compared to the international, the nature of the product or service, e.g. software, that doesn't suffer from physical constraints or the competitive situation where market share must be quickly obtained if it is to be obtained at all.

3. Analysis of Telespro Finland Ltd

3.1. Company history

Telespro Finland Ltd was founded in 2004 following a 3-year research project conducted in the University of Kuopio. The goal of the project was to determine the prevalence of lowered body temperature among emergency patients and assess methods and equipment with which the problem could be rectified. The Department of Physiology developed a design for a protective garment that beside thermal protection would facilitate the carrying of the patient and treatment during transport. Telespro was formed by the participants of this project to market the Rescue Covering.

A maintenance leasing service for the Rescue Covering provided the company with a way to market the high-priced product for a relatively low monthly fee. Consequently, the product has performed well domestically, but during the internationalization process the service has proven to be difficult to localize. It is not currently offered abroad.

Internationalization projects were tentatively approached in 2004 and 2005, but except for some testing in Norway and Germany, did not result in direct sales. Their aim was chiefly to acquire distributors. In 2006, direct sales were accomplished with a major German air rescue operator, but in general it can be said that the strategy of internationalizing through external distributors has failed. While they have provided with some idea of the business environment in the target country, their efforts in marketing Telespro's product(s) have been less successful than those of the company's own employees.

3.2. Strategic analysis

Telespro's strategic situation will be evaluated by assessing its internationalization process as viewed through the stage model and with the proven SWOT analysis. The latter shall also be the basis in assessing the strategic situation of the Accident Covering; consequently, the general company analysis will be brief.

From the outset, Telespro's corporate goals were, on one hand, market the Rescue Covering and on the other, develop or acquire products that would complement it, such as heating packs or variants of the basic model. After the first year of operation, the mission statement was amended. Currently, Telespro defines itself thus:

> "Telespro develops products to protect patients and professionals in emergency situations. Our products are developed with the best technology available and tested by the professionals of the field. We aim to gain a comprehensive understanding of the rescue treatment chain and provide the means for the professionals to improve it further."

The concept of a "treatment chain" is relatively novel to the field of emergency medicine; it entails that treatment starts on-site and continues during transport, in the ER and further down the line in the hospital, or definitive care. Currently, it is further complicated by the fact that there may be several different operators handling the patient before definitive care is reached (e.g. rescue helicopters, first-response units, ambulances). [17] Consequently, Telespro considers understanding the treatment chain in different environments one of its chief goals.

Early on in the company's life it was realized that in order to be credible and competitive in the field of rescue equipment business, a rapport with the professionals was necessary. The company must convince both the ambulance operators and doctors of emergency medicine of its products' usefulness: this entails both practical experience for the former and academic research for the latter. The values of the company aim to reflect these needs.

> "We never claim what we can't back up by research or experience. We adapt to the needs of our customers, within reason. In everything we do, we strive for the best quality materials and highest caliber of professionalism."

Due to the smallness of Telespro's organization and the company's young age in general, the mission and values statements are rather short, but to the point.

With the recent capital injection, Telespro has outlined its strategy so that by 2010, the company will either be in a condition that it can be sold to a larger conglomerate or be successful enough to continue on its own. This will entail that a reasonable market share within the EU will be achieved and the product portfolio will be extended to include 20 indigenous products.

3.2.1 Competitive situation

Telespro's initial domestic competitive advantage was a result of an innovative product coupled with an equally innovative maintenance leasing system. The company also has the advantage of frequent and close contacts with the rescue and emergency medicine community. There are no immediate contenders in the domestic market, and should any arise, they would have to rely on different materials as Telespro has an exclusive right to use the Gore Medical Fleece for patient protection purposes. While its products are not patentable, Telespro has acquired an EU model registration for its Rescue Covering.

Therefore, the threat of similar products is confined to the international market. There, Telespro has to rely on the fact that most competing thermal protection blankets and blanket/stretcher combinations are either disposable or very bulky; in markets like helicopter rescue the weight and space considerations favor Telespro's product. Also, the ease of use and the associated time savings per mission have been a significant advantage in the marketing of the Rescue Covering.

To summarize, Telespro's product range as of 2006 is narrow, but lacks direct competition from similar products. The competition is mostly against traditional methods, i.e. blankets, and traditional mindsets. Telespro has prepared against the threat of similar products by securing superior materials to its exclusive use. Also, there is some room for adjusting the pricing of products, though it is uncertain if a low price would dent the high-end image of the products too much. In the domestic market, the pricing is not an issue due to the low end-user cost of the leasing scheme; in the international market it can become an issue.

3.2.2. Internal factors

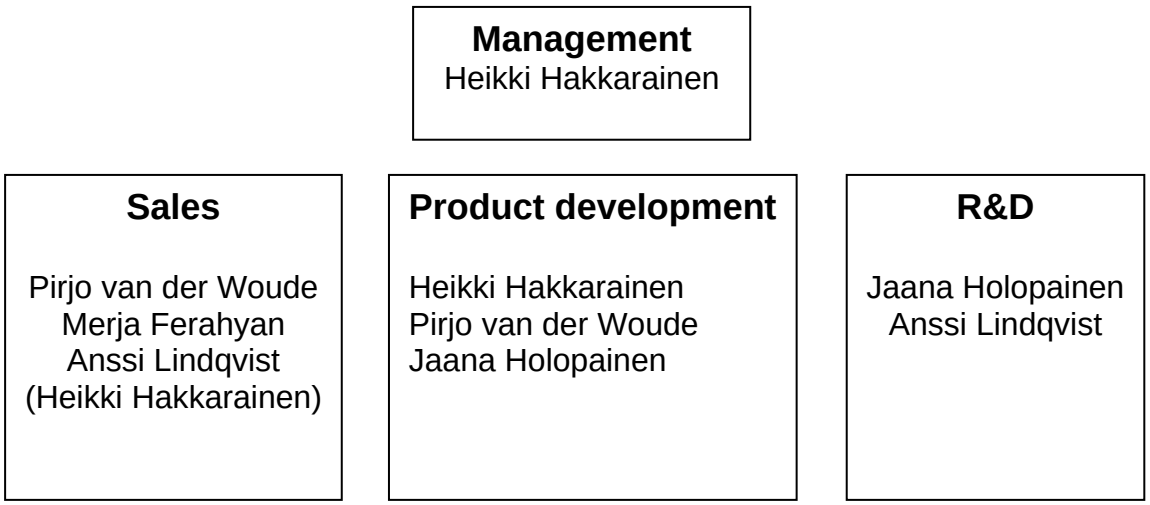
Telespro's current operations are concentrated on the domestic market, it being the easiest route to generating cash flow. The lax pace of internationalization can be attributed to the fact that in its first year of operation, there was no financial or personnel resources to internationalize. This has since been rectified by a capital infusion by Finnvera and recruitment. The personnel base is still quite small, and given the necessity of continuing domestic sales, it is doubtful whether the company can sustain momentum in its internationalization.

For a relatively small firm, Telespro has very experienced businessmen in its board of directors and a CEO with a vested interest (i.e. ownership stake). To illustrate the background of the CEO, Heikki Hakkarainen was a sales manager in companies such as Procter & Gamble, SCA and KPY Finnet.

The organization of the company is divided into four teams. The management team currently contains only the CEO, as the tasks of accounting have largely been outsourced. As of now, the CEO is unusually involved in daily sales, which may be explained by his background and mentality as a "hands-on" type of person.

The sales department is staffed by Pirjo van der Woude, a former export sales manager at Sasmox Ltd, Merja Ferahyan as the German-speaking exporter and Anssi Lindqvist, a specialist nurse / firefighter as a part-time salesman / expert advisor. Jaana Holopainen works part-time due to her job at the University of Kuopio's Department of Physiology. She has extensive experience in designing clothes.

Table 7. Organizational chart of Telespro Finland Ltd.



Source: Interviews with staff

From this organizational chart, one may see that the sales department is seriously understaffed. In practice, there is only one person, Ms van der Woude, capable of conducting a sales push to non-German-speaking countries, and even that is not full-time. While Telespro has utilized virtually all possibilities of outside assistance a SME can obtain, there is no replacement for "boots on the ground", or customer visits. On the domestic front the firm could also stand to have a dedicated sales representative in order to relieve the CEO from daily sales.

3.2.3. External factors

Since the September 11th, Madrid and London attacks, the issue of counterterrorism and mass casualty preparedness has become more prominent in the public eye. How much this has improved the level of funding to the rescue services can be debated, but the market has become more receptive of innovative products that can improve the cost-effectiveness of the rescue services.

In Finland, the rescue services have been submitted to competitive bidding among private and public operators; while this has resulted in the privatization of ambulance services only in smaller municipalities, it has sparked complaints and litigation (Finnish Market Court 1998). This and the fact that due to constraints in the budgeting procedure, the public sector can only invest in new equipment once per year making the window of opportunity for sales small.

While the EU has unified its standards and theoretically a CE certification is the only requirement for a product to be marketed EU-wide, the marketing of specialized rescue and/or protective equipment will no doubt require separate certifications processes to be viable outside the EU. Also, in many markets, one can find problems with the so-called "Not Invented Here" phenomenon – the preference to buy domestic goods instead of imported ones even though the imported is comparably better.

While adherence to safety standards is a prerequisite for company credibility, the nature of the profession of rescue work dictates that the people in that field are risk-averse; their purchasing behavior is equally conservative. This means that sales require a large number of customer visits and on occasion product trials.

3.3. Product portfolio

Telespro's mission statement defines its business as high-technology protective equipment. The current emphasis on patient protection is intended to spearhead an expansion to other adjacent markets. As the core competences of Telespro are currently in the emergency medicine and treatment chain areas, the product portfolio reflects this by focusing on patient extraction and transport.

The product range and its expansion have been in the center of Telespro's efforts throughout 2005 and 2006. Currently, the company has 3 indigenous products ready and 4 in various development stages. Telespro is also starting to test-market imported products to complement its existing portfolio. Products such as moldable multi-use splints and slash- and stab-proof ambulance work jackets that would fit to the existing target markets are in the forefront.

An expansion to a different core competence, assisted by Telespro's partnership with Teal Safety Ltd, is underway as of Q3 2006. The product in question is protective coveralls for military aircraft mechanics. While this might seem an unlikely business to expand to without internal expertise in aircraft maintenance, the principles of normal clothes design with appropriate materials suffice. Also, the market for chemical-protection clothes is not totally separated from the existing markets of rescue and mass casualty preparedness; in several countries (e.g. Norway, Denmark, U.K.) the military is at least to some degree responsible for rescue helicopters. In addition, should the trials for the product be successful, there are numerous applications for such protective clothing.

3.4. Summary

Telespro's strengths are in its products and product development philosophy. The time elapsed from receiving a proposal, e.g. from ADAC Luftrettung for a customized Rescue Covering, to a working prototype ready for testing was 2 months, despite some problems in communication. Because of frequent contact with the rescue professionals in the area and in the Rescue College of Finland, the company has an unusually good understanding on what gaps there exist in the market. Also, the head of design is competent not only in her job but also in navigating the often convoluted standards system that is required for products that relate to rescue and emergency medicine.

Telespro's business plan has been successful domestically, but unfortunately the main earning strategy, the maintenance leasing system, has proven unworkable abroad. The leasing system requires a local bank to finance the operation, and attempts to find such partners abroad have met with difficulty. Also, in Norway, the Ministry of Health is apparently opposed to any leasing schemes (Nysveen 2005). While the leasing system brings with it a tremendous advantage in pricing, it adds an element of uncertainty compared to direct ownership, and most rescue organizations seem to prefer simply taking ownership at a slightly higher price.

Telespro's internationalization has suffered from a lack of clear strategy. Where it has been successful, i.e. Germany, it has been because of an employee familiar with the culture, proficient in the language and with ample time to prepare and then carry out sales tours. The strategy of obtaining distributors to enhance market penetration has proven unsuccessful and direct sales are hard to achieve in reasonable quantity with such a small workforce. The greatest problem in Telespro's internationalization strategy is not only that the approach has been unstructured, but that the required cash flow by the investors has had the company preoccupied with building the domestic base for much of 2006.

4. Case Study: International market strategy for the Accident Covering

4.1 Introduction

The key issue of this study is to ascertain the strategy by which Telespro's Accident Covering will be successfully marketed abroad. The scope of this study is narrow, as it aims to thoroughly analyze the potential market of air accident mass casualty preparedness in the United Kingdom.

The analysis shall proceed using the conventional SWOT analysis tool, followed by a view of the current situation of competitive products and the regulatory environment of the market. The resulting strategy will take into account the limited manpower and financial resources of the company, and therefore may seem conservative or even timid. This is because the strategy strives to be realistic and achievable; the reasons will be explained in detail.

The origin of the Accident Covering was to develop a product that would assist rescuers in a mass casualty event to give effective thermal protection to patients that are lightly or less seriously injured. In such an event, by definition, available ambulance capacity cannot transport every casualty immediately to definitive care. The casualties are therefore sorted by a triage system. Triage systems vary slightly by country [21], but usually assign patients to four groups: untreatable or dead, in need of immediate treatment, treatment can be delayed and minor wounds. The patients in the latter two categories may have to wait a long time at the scene of the accident. The Accident Covering is intended to both help the rescuers carry those who cannot walk and provide thermal protection to any patient, thereby rendering large quantities of stretchers and blankets redundant.

4.2 SWOT Analysis

The aim of this SWOT analysis is to evaluate the feasibility of marketing the Accident Covering in the international market. The specific properties of the target market will be mentioned here, but elaborated later on.

The strengths of Telespro and the product lie in the materials and professional expertise it has in its disposal. In domestic mass casualty incident exercises it had become evident that triage categories that do not require immediate transport are often left waiting for treatment and transport, and the Accident Covering is designed expressly for that purpose. It also has the advantage of being able to replace existing permanent and single-use products, by virtue of being re-usable and of robust design. Telespro's existing product portfolio also supports the image of a professional, high-tech product. Also, Telespro has a number of good contacts in the rescue services in Finland as well as companies in related fields; these are bolstered by the Innovation Relay Centre, which actively helps aspiring companies to network all over Europe.

Weaknesses that are evident in the Accident Covering marketing project are mostly in the company, not the product. Telespro does not have the resources for a large-scale marketing push due to the lack of sales agents on the ground. Instead, it must operate mostly from its home base via email and telephone. This reduces Telespro's ability to identify and respond to competition and weakens its marketing message. Having no presence in the UK, Telespro also has to establish its brand image from the ground up.

Opportunities for the Accident Covering are found in the increased focus to mass casualty incident preparedness in the UK due to the current worries over terrorism. While the frequency of airport accidents is quite low, the high traffic frequencies of airports in the UK make the possibility of a catastrophic accident too high to be ignored. Also, most major airports in the UK are owned by conglomerates that operate several large and small airports. Obtaining a contract from one of the high-profile operators would not only yield significant order quantities but also market penetration to the smaller airports. Should the

product prove successful, it can create favorable publicity in short order and spawn further opportunities in other areas.

Threats to the success of marketing the Accident Covering are rooted in both the customers' purchasing practices and the volume of sales. The price of an individual Accident Covering is greater than that of current products in use, such as foil and wool blankets. This is because of the materials and manufacturing costs are high for small production runs, and Telespro cannot afford to pay for a production run before receiving orders. If Telespro is unable to obtain some reasonably high-profile contracts, it will be exceedingly hard to market such a product that has a low usage frequency, even if the benefits over competing products are effectively communicated.

Table 8. Summary of SWOT Analysis

Strengths	*Weaknesses*
Excellent materials and design	Finances
Small, responsive organization	Lack of workforce
Networking	No brand recognition
Backed by academic research	
Opportunities	*Threats*
Interest aroused by current events	Larger players can out-muscle Telespro
Large and competitive market	Similar products
Field driven by market leaders	Unforeseen growth is unsustainable
High possibility of collateral benefits	

Source: Author

From this diagram, the general conclusion is that Telespro should apply a concentrated push to snare key clients in the field as fast as possible. If the approach is thinned out to a large number of clients, Telespro's limited resources will result in a marketing campaign of half measures.

4.2.1 Product analysis

The Accident Covering is based on Telespro's main product, the Rescue Covering, but to avoid intra-company competition, it has been modified to be of more use in a mass casualty event and less useful as a daily-use piece of ambulance equipment. The garment part is open from the bottom and therefore usable as a cloak. The material of the garment is optional; either GORE Medical Fleece Laminate or GORE Windstopper. The latter is significantly cheaper, while the former has especially good thermal isolation properties as well as a microbial barrier. The Medical Fleece Laminate is also a very exclusive product, and its procurement can be problematic; minimum production runs of the fabric are large and minimum order quantities proportionately so. The Windstopper fabric, on the other hand, is widely used in a variety of products, but does not have a microbe barrier.

While the Medical Fleece Laminate material is appropriate for the Rescue Covering, mainly because of the daily usage and the benefits in bacterial containment, the pros and cons of using such material are different for the Accident Covering. The benefit of using such a material are in marketing (highest-quality, scientifically proven material) but the contrary points are pricing and procurement. The Windstopper, in comparison, already has a recognizable brand presence and has features that are not significantly inferior, but the company would benefit if it had an additional product using the same material as the Rescue Covering as it would simplify the procurement process. Naturally, should the Windstopper prove better marketable due to the pricing advantage, there is no point in hesitating to switch over permanently.

4.2.2 Market analysis

The intended market for the Accident Covering is mass casualty incident preparedness units. Such units in the UK are coordinated by the Department of Health Emergency

Preparedness Division, while its guidelines are implemented by the National Health Service or NHS (NAO 2005, p.2).

The NHS is divided according to the political entities of the UK; England, Scotland, Wales and Northern Ireland. The Isle of Man and the Channel Islands have a separate healthcare system (NHS 2006). NHS England is further divided into 10 Strategic Health Authorities which oversee the status of health services in their areas; NHS Scotland and NHS Wales follow a similar system, though there the moniker is Health Board. Northern Ireland is administered by Health and Care NI. All except England have a countrywide ambulance service. In England, regional responsibility of rescue services is divided to Ambulance Trusts which coordinate a multitude of regional Ambulance Services. Individual units are divided among Ambulance Stations which are responsible for a smaller area.

Mass casualty incidents are handled by the local Ambulance Trust in conjunction with local police and fire authorities. Ambulance Trusts have so-called Major Incident Vehicles to hold equipment necessary to handle approximately 50 casualties.

Table 9. Partial listing of Major Incident Vehicle equipment manifest.

Blankets (Red)	50
Carry Sheets	25
Survival Blankets (foil)	25 none on vehicle – new purchase 100 required
Survival Blankets (White)	25 ?none on vehicle
Stretchers (Furleys) plus harness	25
Rollup stretchers	10
Paraguard Stretcher	delete
Basket Stretcher	delete
Vac-matress with carrying handles	1

Source: London Ambulance Service. Email exchange on 20th Oct 2006

As seen on the equipment manifest, the items replaceable by the Accident Covering are blankets, carry sheets, survival blankets and Furley and roll-up stretchers.

Airport fire services usually rely on the local ambulance trusts to evacuate its casualties, but the case could be made that airports should have the means to protect casualties at the scene. Should this not be feasible, there should be some marketing directed at the companies operating airports so that at least there would be awareness of the product and its potential uses.

There are other potential uses for the Accident Covering. One example is in police cars, where the cloak can protect, for example, car accident victims or unconscious people that they may chance upon. Other examples include disaster relief organizations, although the pricing would likely have to be adjusted for that purpose. The military uses of the Accident Covering would likely be in airbase casualty recovery, and they will be taken into account with the airport industry.

4.2.3 Competitive analysis

The Accident Covering, being a carrying tool and protection garment simultaneously, must naturally compete with ordinary stretchers and blankets. Also, there are numerous carrying equipment available, but none incorporate the protection aspect in a similar fashion.

The Accident Covering's other advantages over the traditional blankets and stretchers include the following: reusability, waterproofness, light weight and compactness. These qualities are powerful arguments for mass casualty equipment; not only regarding the space concerns in the vehicles but in retaining the effectiveness of the rescuers in protracted operations and, naturally, keeping the casualties warm and dry.

In order to effectively compete against the traditional methods of patient protection and casualty extraction, the Accident Covering must be compatible with other equipment used by the rescuers. Furthermore, the product should accommodate the various signage used by the personnel doing triage; these methods are often *ad hoc*, if there are no

dedicated equipment available. As of the current model, there is no possibility in the Accident Covering to attach triage cards or similar equipment, but such a possibility would be simple to add.

Conventional means of patient transport are stretchers and spinal boards. Stretchers are available in various degrees of durability and mobility, ranging from heavy models most often used on a daily basis in ambulances, to foldable light-weight emergency stretchers. Blankets, on the other hand, are usually quite reasonably priced and some retailers offer single-use foil blankets for approx. £1.15.

Table 10. Examples of competing equipment prices, UK (VAT 0%)

	Retailers	
Product	SP Services	L.E. West online
Regular blanket	£17,95	£17,95
Foil blanket	£1,50	£1,15
Foldable stretcher	£150,00	£115,00
Ferno trolley stretcher	£2 882,74	£2 677,67

Source: Respective company websites (see references)

The advantage of the Accident Covering over regular blankets is that cotton or synthetic fiber blankets absorb moisture from the surrounding environment as well as from the possibly damp clothing the casualty is wearing, whereas GORE materials have been shown to wick out the moisture from within while keeping external moisture out. Foil blankets, on the other hand, reflect radiated heat, making them most effective when there are no insulating layers between the skin and the reflective foil. Should the casualty be wearing thick or damp clothing, the effectiveness of the foil is negligible.

In a comparison test of the GORE Medical Fleece Laminate and a wool-foil-wool combination, it was shown that the GORE product is significantly more effective in retaining heat while dispersing moisture in a windy, cold environment. Although the test showed that the materials are more or less equal when the air is completely still, such a situation is highly unlikely to occur in everyday situations.

From the point of view of visual marketing, the Accident Covering is compatible with the expected look of a piece of rescue equipment. It is also equipped with reflective strips that may be quite useful in a badly-lit scene. However, the visuals are only useful in the initial phase; to fully appreciate the qualities of the material, the product must be seen first hand. A useful trick is to exploit the counterintuitive properties of the material; although it is similar to normal fleece and consequently expected to be highly absorbing, moisture does not penetrate at all. This serves to impress the customer favorably.

4.3. Analysis of target market

In analyzing the demands of the target market, the nature of a possible mass casualty incident in an airport must be examined. Fatal accidents involving small aircraft are not likely to cause a mass casualty incident, therefore only accident statistics involving large jet and turbine propeller aircraft are considered.

When analyzing the most recent data on fatal accidents involving civilian large jet or turboprop aircraft, post-crash fire accounts for fatalities in 33% of cases, ranking as the second most common (CAA 2005, p.23). However, this is non-exclusive, meaning that all the fatalities were not caused by a single accident consequence. This does give an insight to what sort of injuries would be most likely to occur among hypothetical crash victims.

Table 11. Top Five Consequences, fatal accidents 1995-2004 (jet and turboprop)

Rank	**Consequence**	% fatal accidents involving consequence
1	Collision with terrain/water/obstacle, non-CFIT	48%
2	Post-crash fire	33%
3	Loss of control in flight	29%
4	Controlled flight into terrain (CFIT)	26%
5	Runway excursion	11%
-	Not allocated with a consequence	1%

Source: CAA Aviation Safety Review 2005, p.23

Based on this data, one may infer that casualties from a survivable crash near or at an airport are most likely to have one or more of the following: various impact-related trauma, burns or respiratory distress associated with smoke inhalation. Such injuries, if not fatal, are sure to require treatment in a hospital. However, when reviewing the accident fatality and injury statistics, the ratio of fatal to serious and minor injuries among crew and passengers shows that minor injuries are most prevalent even in accidents that resulted in fatalities (CAA 2005, p.34).

Table 12. Injuries in fatal accidents, 1995-2004 (jet and turboprop)

	Injury	**Total**	**Percentage**
Crew	**Fatal**	7	22 %
	Serious	8	25 %
	Minor	17	53 %
	Total	32	
Passenger	**Fatal**	1	1 %
	Serious	6	7 %
	Minor	80	92 %
	Total	87	

Source: CAA Aviation Safety Review 2005, p.34

Extrapolating from these results, it can be justified that a major accident in an airport that would not result in total loss would have large numbers of survivors that would have received only minor injuries. While fatal accidents involving passenger liners are quite rare, the current passenger capacities of even mid-range airliners mean that such incidents carry the possibility of over a hundred casualties with varying injuries.

While the possibility of a serious accident might lead one to conclude that the market for mass casualty equipment is favorable, the problem is that the need is not necessarily perceived among potential customers. The most potent tool to illustrate the need for on-site patient protection is via field testing in exercises.

4.3.1 Market potential

The fragmented nature of NHS Ambulance Trusts' organization makes it exceedingly hard to obtain full information on the number of Major Incident Vehicles. Isolated examples can be found, however. One such is the former Essex Ambulance Trust, now being amalgamated into a larger East of England Ambulance Trust.

In Essex there are three Major Incident Equipment vehicles; if one considers the population of Essex County (1,310,835 according to the latest census), there should be approximately 115 such vehicles in England (population 50,431,700) (National Statistics 2005). This admittedly conservative estimate yields market potential of over 5000 units. Scotland, Wales and Northern Ireland, having smaller populations, would contribute some 1000 units in potential sales.

Another potential use for the Accident Covering is in Rapid Response vehicles. These have become prominent especially in urban environments, where ambulances may have difficulty in reaching the site due to congestion or are busy taking in higher priority calls. Such units are normal cars, and in some cases motorcycles. These units are possible

targets for the Accident Covering as they have significant space constraints and may need to transport insufficiently clad patients to hospitals.

For use in airports, the potential market in the UK is significant. There are a large number of airfields in the UK, but for the purposes of Telespro only those that have significant national or international traffic shall be considered. Due to the large number of airfields and aerodromes in the UK, only those that have a hardened runway of ca. 5000 ft length are included. The length is determined as being able to facilitate the landing and takeoff of a Boeing-McDonnell Douglas MD-80, a widely used medium passenger transport (Boeing 1989).

There are 50 airports that match the criteria designated above (UK AIP 2005). While it may be unrealistic to assume that they would purchase quantities that would handle the passenger capacity of the largest aircraft that could conceivably crash in the airport, even 50 per airport would equal a sales volume of 2500 units. However, this is a low-expectation estimate. The actual potential is likely to be double or triple that, perhaps even more.

Regarding military use, the potential is very difficult to estimate as the military would likely have other uses beside airport rescue for such equipment, and the product would have to be modified to fit military specifications. However, the effort in attempting to penetrate the military market is worthwhile, as the UK is a prominent member of NATO and as such would help in marketing to other NATO members.

4.4. Field testing

The Accident Covering was tested in a combined fire service – ambulance service exercise in the City of Derry Airport, Northern Ireland. The chief aim in regard to the present study was to obtain information about the practices of UK airport rescue and

more importantly to see if there are any insurmountable problems in the possible adoption of the Accident Covering to use in UK-based rescue services.

Chief concerns in aircraft crash rescue are speedy evacuation of the casualties from the wreckage, performing triage and assigning the casualties to be transported to definitive care. In this exercise, a bus full of nursing students served as the mock wreck. The "casualties" had a sheet of paper hanging from their necks where their outward symptoms were recorded.

For the purposes of this study, the performance of the rescue services is ignored. The primary concerns are the reports of the rescuers on the usability of Telespro's products and possible impressions from the simulated casualties. An unfortunate event for the test was the fact that the notoriously rainy and windy Ireland had temperatures around 20 degrees centigrade and sunshine from clear skies on the day of the exercise. While it did not impact the triage and carrying aspects of the exercise, the casualty actors became quite uncomfortable due to the heat.

The report on the exercise was prepared by the University of Ulster. The criteria in evaluating the effectiveness of patient protection devices was wide-ranging, from comfort to preserving the patient's dignity (e.g. if the patient has been stripped for treatment). Obviously the comfort factor declined as the exercise went on as the weather was quite hot and humid, but other aspects were unaffected.

The findings were collated into brief pro/con statements, alongside with perceptions of the covering devices evaluated in regard to the aspects monitored. In the following table, the summaries provided give some insight into the perceptions of the rescue crews and casualties had of the various products.

Table 13. Comparison of positive and negative comments.

	Positive	Negative
Cotton Blanket	Cheap, simple to use and clean, compact	Limited heat retention, not waterproof, difficult to completely cover patient, easily damaged or soiled
Telespro Rescue Covering	Very warm, roomy, easy to carry, waterproof, good visibility	Too powerful heat retention, difficult to use with immobile patient, difficult to assess condition of covered patient
Telespro Accident Covering	Light, very warm, easy to use, waterproof, good visibility	Too long for most walking patients, trip hazard

Source: Deeny et al, 2006

While the findings reflect the unseasonable weather rather heavily and demonstrate that the Rescue Covering has problems in mass casualty use, the overall assessment for the Accident Covering is very promising. A minor re-design would alleviate the tripping problem while the positive remarks show that the basic premise of the product gives a competitive advantage. Further interview with the principal author of the study, Patrick Deeny, indicated that the carrying portion of the Accident Covering was not necessarily a requirement for its use (Deeny 2006).

Another exercise simulating an airliner incident was undertaken in Saariselkä, Finland, in October 2006. While this exercise cannot serve to give insight into the UK market, it does offer some information that can be useful in formulating the marketing strategy. In this exercise, a simulated landing mishap and subsequent fire caused multiple casualties. The exercise showed that the transport of even seriously injured patients was delayed considerably and they had to be evacuated to an interim facility, in this case the terminal of the airport.

From these field tests we may conclude that there is an actual need for improvement in the airport mass casualty preparedness and that the Accident Covering is potentially a

solution for safety officials looking to improve the care of casualties. The issue then becomes one of communicating the specifics of the solution to the customers.

4.5. Formation of marketing strategy

In this chapter, the strategy Telespro should, in the author's view, adopt in marketing the Accident Covering will be enumerated. The recommendations shall endeavor to be as prudent as possible; after all, the company is of modest resources in both workforce and finance. While this might not be the strategy that will result in immediate successes, it is, however, in the author's opinion one that is in the realm of possibility.

The process of marketing the Accident Covering to the UK market will not take place in a vacuum; Telespro does not have the resources to operate a separate marketing campaign in the UK for one of its products. Instead, the marketing of the Accident Covering must rely on the marketing of the Rescue Covering. The reasons behind this strategy lie in the overwhelmingly positive reception the Rescue Covering has achieved in both the foreign and domestic markets and the fact that the procuring customers are ultimately the same.

The following subsections will explore the various facets of Telespro's proposed marketing activities in the UK. While they may touch upon the other products in the company's portfolio, the focus shall remain in the Accident Covering.

4.5.1. Market entry methods

In the past, Telespro has conducted its overseas operations by either direct sales or through recruiting distributor companies. While this strategy is not risky, it potentially has low cost-effectiveness. Distributors may relegate products to the back-burner, preferring familiar products, and flying abroad for sales trips is expensive and time-consuming.

If Telespro is to achieve significant sales in the UK in a reasonable time, the approach must be one that establishes a permanent presence in the country that can frequently contact potential customers. Previously, Telespro has been forced to restrict its marketing to a select few high-profile customers due to the limitations described above. With sales personnel in the country, both the high end customers such as air rescue and smaller, "grassroots" customers can be reached.

According to Luostarinen's stage model, one should expect a sales subsidiary to be established at this stage. It could be argued that Telespro's line of business is such that the older methods of internationalization apply better than modern ones; the nature of the products being marketed requires close contact with the customers. The problems of acquiring distributors have been discussed previously, and the uncertainty over the commitment of distributors has lead to the conclusion that dedicated salespeople based in the UK may be a better course of action.

While it is beyond Telespro's means to establish a separate branch to handle operations in the UK, it is by no means impossible to have sales agents on payroll in the UK. The UK Companies Act has a provision for foreign firms conducting business in the UK that requires only a simple registration to the Companies House which would be ideal for Telespro's needs.

The critical success factor in operations in the UK is the selection and management of the personnel there. Being that the best potential market is among the Ambulance Trusts,

which are public healthcare organizations, much time and effort can be saved if the salespeople are already knowledgeable about the system. One also cannot underestimate the significance of personal contacts and experience on work routines and practices. As Telespro's initial successes in the domestic market were helped by the amicable relationship it has with the local rescue services and the Finnish Rescue College, it should be a priority to obtain similar contacts from the UK.

Ideal personnel for Telespro's needs would therefore be former or current EMTs and paramedics; in general, people who have experience of the daily routines of rescue work and know other people in the field. Failing that, people that have experience in doing business with the NHS would be a second choice. An intimate knowledge of the NHS organization is essential, but as important as that is the commitment to the company's goals of improving the patient treatment chain with the Rescue Covering product family.

4.5.2. Role of the Accident Covering

As the market potential estimate shows, the Accident Covering has scant potential of being a blockbuster product; it relies heavily on the success of marketing into the airport safety market and major incident vehicle replacements. Although the potential sales could be significant, one must expect organizational inertia and resistance to adopting new products; most likely this would apply to the Rescue Covering as well as the Accident Covering.

Telespro's main advantages lie with the Rescue Covering, as it has been proven effective in daily rescue operations. The Accident Covering, on the other hand, does not enjoy such benefits in making an immediate impact in the work of Ambulance Trusts or airport rescue services. Consequently, its marketing is best conducted on the side, in conjunction with other products in Telespro's portfolio.

Being that the marketing of the Accident Covering will have to significantly adjust the perceptions of mass casualty incident management in the sense that previously such equipment has been seen as low-cost and low-priority, the approach in offering it should focus not only on the operational and medical properties but also on the actual cost of current methods.

If we consider the equipment manifest of a London Ambulance Service major incident trailer, we can see that there are only 25 stretchers and 25 carrying sheets; the latter are impractical in carrying casualties except for very short distances. The argument in favor of the Accident Covering is that with the space saved by eliminating the stretchers and blankets and replacing them, the capacity for patient transport can be increased to some extent without compromising patient protection and efficiency – on the contrary. Unfortunately, this argument may not carry much weight in light of the substantial sticker price of the product. A good way of offsetting the price is the durability argument. The GORE fabric has proven to withstand over 500 washes without degradation; this would mean that the purchase would be for all intents and purposes final. Normal blankets in mass casualty use may find themselves distributed everywhere or degraded so that they must be replaced.

It seems that considering the difficulties in marketing a novel item that has a rather high price with little financial support to sustain large-scale marketing campaigns, Telespro should relegate the Accident Covering to a secondary role in its internationalization to the UK. This does not mean that it is a fool's errand to try to introduce it, but there is a possibility of "fratricide". By this it is meant that the marketing of the Rescue Covering, which is a proven item but with an even higher price, could suffer as the products are superficially similar.

In order to avoid fratricide, the marketing message of the Accident Covering must differentiate it from the daily-use Rescue Covering to the role of a stopgap product usable in secondary rescue vehicles. Unfortunately, this means that its marketing will be considerably more difficult than that of a daily-use item.

4.6. Findings and proposals

4.6.1. Summary of theoretical background and company history

It has been established that SMEs are a significant factor in the overall generation of wealth in the economy of Finland. Though most small firms are not capable or interested in internationalizing their activities, some do, and are most often high-technology, innovation-centered ones. Their meager resources and lack of qualified workforce make their internationalization process difficult, and result in unorthodox approaches which are not predicted by theory.

Theoretically, the internationalization of the firm progresses from low-risk operations such as direct sales to those with higher degrees of commitment and consequently higher risks (Luostarinen 2002). Small businesses often circumvent or skip the various steps of inward and outward internationalization and approach internationalization on a more opportunistic attitude. Some disregard the step-by-step approach entirely. What is significant in the difference in the internationalization process between large firms and SMEs is that SMEs are more prone to behavioral influence, mainly because of the smaller decision-making staff. This means that the organizational mentality of a small firm is rooted in the experience and competence of its management to a high degree; should they be technically oriented, it can lead to a defensive mentality where the firm foregoes aggressive internationalization in favor of honing their product excellence, which may not be strategically beneficial. On the other hand, managers who have a business background may be overly aggressive in trying to grasp every international business opportunity, thus compromising the rewards of a measured internationalization process. It is very important to try to strike a balance between these contradictory approaches in a small firm, as the financial resources of smaller firms rarely allow for missteps.

Telespro's internationalization process was launched quite early on in the company's life. It was apparent early on that the primary product did not have sufficient domestic market

potential to satisfy growth demands. Early internationalization attempts unfortunately met with limited success. The company did not have competent staff solely dedicated to the internationalization process, and therefore the attempts were uncoordinated and haphazard. It quickly became apparent that direct sales were not cost-effective and securing the required level of commitment from overseas sales representatives was difficult due to the demanding nature of the product. While the response from pilot tests in Germany and elsewhere was favorable and some direct sales were achieved, the remote location of the company headquarters made it cumbersome to make sales and promotion trips frequent.

The chief problem that Telespro encounters is that its products require the customer to change its operational routines to some extent. Considering that the company's chief customer base is usually the civil administration, i.e. the public rescue services, considerable organizational resistance was expected and met. The chief advantages Telespro's products offer, that is improved patient protection and less time spent on scene, were eagerly embraced by the specialist rescue units such as Finnish Frontier Guard helicopters and ADAC Air Rescue, but regarded with doubt by the larger land ambulance market despite results to the contrary. After marketing messages were varied not only among market segments, but within those segments depending on the position of the other party (operational, administrative or public sector finance), domestic sales were achieved successfully.

The adoption of the Accident Covering will present Telespro with a new set of problems, some of which will hopefully be avoided with the information presented in this thesis.

4.6.2. Findings on the Accident Covering

The Accident Covering is a new addition to Telespro's product portfolio. The idea behind it was to take the principles of the proven Rescue Covering design and downgrade the complexity to such a degree that it would become more affordable while still retaining its

effectiveness for use in mass casualty incidents. The objective for this study was to gain insight to its market potential in the UK in general and within the airport rescue market in particular. This was accomplished by evaluating the scope of the UK air transport industry by the number of airports that handle national or international air traffic with mid-range airliners – Boeing McDonnell Douglas MD-80 being the yardstick for evaluating such capability. Also, air accident statistics over the period of 1995 to 2004 were evaluated to gain insight on the nature and proportion of casualties from fatal to minor.

The practical aspects of airport crash recovery were gleaned from a rescue exercise conducted at the City of Derry airport which was subsequently evaluated by the University of Ulster. The comparison study compiled the experiences of both the rescue crews and casualty actors in order to establish the capabilities of both traditional patient protection gear and Telespro's two products.

Market analysis shows that the UK has a reasonable potential market for the Accident Covering. By a conservative estimate, the NHS Ambulance Trusts over the UK yield a potential 6000 units, while the airline industry would contribute 2500 to 3000 units, for a total of circa 9000 units. These estimates disregard the potential for sales in Rapid Response vehicles, however. A more optimistic appraisal would be in the vicinity of 15,000 to 20,000 units, which to the author's opinion would be close to total market penetration.

The perceived need for the Accident Covering is harder to judge. Two factors influence this, namely the pricing and the success of communicating the advantages of the Accident Covering to the customer. With regards to the actual need, the accident statistics clearly show that the majority of casualties in accidents that occur in the vicinity of the airport are minor injuries; experiences from exercises show that such patients often have to wait for extended periods of time before they are transported to definitive care. During that time, insufficient protection from the elements may result in medical problems such as lowered body temperature which has been shown to complicate further care.

Communicating the need for adequate protection of patients with minor injuries is critical to the success of this product. Unfortunately, the appeal of retaining blankets for this purpose is high due to the perceived low costs and simplicity. This is compounded by the fact that currently the Accident Covering is a dual-purpose product. In the interests of simplifying the marketing message, it may be beneficial in some cases to eliminate the carrying aspect from the Accident Covering in order to clarify the point that the blankets can be replaced. This would also help in bringing the price down to some extent.

Regarding the pricing of the Accident Covering, one may notice that little is said about the actual profit margins and production costs. This is due to the fact that up to this point, there have been only very small production runs (10-20 units) and there is no way to judge the economies of scale that would entail from a large order. Also, it may be noted that the final material for the product has not been finalized as of yet. This has made it impossible for the author to draw up detailed cost analyses or break-even points. While this is regrettable in the sense that it does not allow for a more insightful analysis into what sort of commitment levels the company can and should tolerate in the internationalization process, this fact is mitigated by the simple truth that Telespro can hardly afford anything but a minimal commitment in any case.

Due to the limited resources Telespro has at its disposal, the Accident Covering should take a secondary role during the initial phases of acquiring customers from the UK. This is because the most sensible targets in gaining a foothold in the country are high-profile, high-demand rescue units such as aerial ambulances and Search-And-Rescue units. When marketing efforts progress to the level of Ambulance Trusts, the mass casualty incident market becomes prominent.

Therefore, the author’s recommendation is that Telespro should recruit at least one salesperson that has experience in the field by summer 2007. This would enable the unavoidable pilot tests to begin, if all goes well, by fall when the weather begins to deteriorate so that the need for patient protection becomes obvious. This would also give

ample time to re-design the Accident Covering in order to alleviate the tripping problems that surfaced in the City of Derry exercise. Also, the pricing of the product should be rectified as to appeal to smaller Ambulance Trusts. While this may seem a counterproductive suggestion, the ongoing expansion in Telespro's product portfolio means that gaining at least a small degree of brand recognition will be of assistance in the longer term.

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Wales: NHS Wales / GIG Cymru website.

URL: http://www.wales.nhs.uk/sites3/home.cfm?OrgID=452

Northern Ireland: Health and Care NI website.

URL: http://www.healthandcareni.co.uk/

First aid equipment prices:

Data obtained via Internet from following British first aid equipment retailer websites:

SP Services Inc (UK). www.spservices.co.uk

L.E. West Ltd. www.le-west.co.uk

Appendix 1: List of United Kingdom Airports with runway length over 4,400 ft.

Information from compiled UK Aeronautical Information Package data.

Appendix 1.

Channel Islands, Isle of Man (3)

Town	Airport name	ICAO	IATA	Usage	Runway	Runway surface
Guernsey	Guernsey Airport	EGJB	GCI	Public	4,800	Asphalt
Isle of Man	Isle of Man Airport	EGNS	IOM	Public	5,754	Asphalt/Concrete
Jersey	Jersey Airport	EGJJ	JER	Public	5,597	Asphalt

Wales (4)

Town	Airport name	ICAO	IATA	Usage	Runway	Runway surface
Cardiff	Cardiff Int'l	EGFF	CWL	Public	7,848	Asphalt
Chester	Hawarden Airport	EGNR	CEG	Public	6,702	Asphalt/Concrete
Haverfordwest	Haverfordwest	EGFE	HAW	Public	5,000	Asphalt
Swansea	Swansea Airport	EGFH	SWS	Public	4,429	Concrete

Scotland (12)

Town	Airport name	ICAO	IATA	Usage	Runway	Runway surface
Aberdeen	Aberdeen Airport	EGPD	ABZ	Public	6,001	Asphalt
Balemartine	Tiree Airport	EGPU	TRE	Public	4,829	Asphalt
Benbecula	Benbecula Airport	EGPL	BEB	Public	6,023	Asphalt
Campbeltown	Campbeltown	EGEC	CAL	Public	10,003	Asphalt
Dundee	Dundee Airport	EGPN	DND	Public	4,593	Asphalt
Edinburgh	Edinburgh Airport	EGPH	EDI	Public	8,399	Asphalt
Glasgow	Glasgow Int'l	EGPF	GLA	Public	8,720	Grooved asphalt
Glasgow	Glasgow Prestwick	EGPK	PIK	Public	9,799	Concrete/Asphalt
Inverness	Inverness Airport	EGPE	INV	Public	6,191	Grooved asphalt
Islay	Islay Airport	EGPI	ILY	Public	5,068	Asphalt
Stornoway	Stornoway Airport	EGPO	SYY	Public	7,218	Asphalt
Wick	Wick Airport	EGPC	WIC	Public	5,988	Asphalt

Airports in Northern Ireland (3)

Town	Airport name	ICAO	IATA	Usage	Runway	Runway surface
Belfast	Belfast Int'l	EGAA	BFS	Public	9,121	Asphalt
Belfast	George Best Int'l	EGAC	BHD	Public	6,001	Asphalt
Derry	City of Derry Airport	EGAE	LDY	Public	6,076	Asphalt

Airports in England (28)

Town	**Airport name**	**ICAO**	**IATA**	**Usage**	**Runway**	**Runway surface**
Birmingham	Birmingham International	EGBB	BHX	Public	8,547	Asphalt
Blackpool	Blackpool International t	EGNH	BLK	Public	6,132	Asphalt
Bournemouth	Bournemouth Airport	EGHH	BOH	Public	7,451	Asphalt
Bristol	Bristol International Airport	EGGD	BRS	Public	6,598	Asphalt
Canterbury	Kent International Airport	EGMH	MSE	Public	9,029	Asphalt/Concrete
Carlisle	Carlisle Airport	EGNC	CAX	Public	6,027	Asphalt
Coventry	Coventry Airport	EGBE	CVT	Public	6,586	Asphalt
Doncaster	Robin Hood Airport	EGCN	DSA	Public	9,491	Asphalt
East Midlands	Nottingham Airport	EGNX	EMA	Public	9,491	Asphalt
Exeter	Exeter International	EGTE	EXT	Public	6,833	Asphalt

Filton	Filton Aerodrome	EGTG	FZO	Public	8,094	Concrete
Kingston upon Hull	Humberside Airport	EGNJ	HUY	Public	7,205	Asphalt & Concrete
Liverpool	John Lennon Airport	EGGP	LPL	Public	7,500	Asphalt
London	London Biggin Hill Airport	EGKB	BQH	Public	5,912	Tarmac
London	London City Airport	EGLC	LCY	Public	4,948	Grooved Concrete
London	London Gatwick Airport	EGKK	LGW	Public	10,879	Asphalt/Concrete
London	London Heathrow Airport	EGLL	LHR	Public	12,799	Grooved Asphalt
London	London Luton Airport	EGGW	LTN	Public	7,086	Grooved Asphalt
London	London Stansted Airport	EGSS	STN	Public	10,000	Grooved Asphalt
Lydd	London Ashford Airport	EGMD	LYX	Public	4,938	Grooved Asphalt
Manchester	Manchester International	EGCC	MAN	Public	10,000	Concrete/Grooved Asphalt
Newcastle u. Tyne	Newcastle Airport	EGNT	NCL	Public	7,641	Asphalt
Norwich	International Airport	EGSH	NWI	Public	6,040	Asphalt/Concrete
Retford	Gamston Airport	EGNE		Public	5,522	Asphalt
Southampton	Southampton Airport	EGHI	SOU	Public	5,653	Asphalt
Southend-on-Sea	London Southend Airport	EGMC	SEN	Public	5,266	Asphalt
Tees Valley	Durham Tees Valley Airport	EGNV	MME	Public	7,516	Asphalt
West Yorkshire	Leeds Bradford Int'l Airport	EGNM	LBA	Public	7,382	Concrete